

**LINEAR PHASE DETECTOR FOR HIGH-SPEED CLOCK AND DATA
RECOVERY**

ABSTRACT OF THE DISCLOSURE

Methods and apparatus for recovering a clock and data from a data signal. A
5 method provides for receiving a clock signal having a first clock frequency and alternating
between a first level and a second level, and receiving a data signal having a first data rate, the
first data rate equal to the first clock frequency. The method also includes providing a first
signal by storing the data signal when the clock signal alternates from the first level to the second
level, and providing a second signal by passing the first signal when the clock signal is at the
10 first level, and storing the first signal when the clock signal is at the second level. A third signal
is provided by delaying the data signal an amount of time. An error signal is provided by
combining the first signal and the third signal, and a reference signal is provided by combining
the first signal and the second signal.

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